Lecture 2

Com Sci 121

The sequencing oracle-> Pick a random position on the genome.

Uniform Coverage: Uniform coverage of a genome refers to an even distribution of sequencing reads or data across the entirety of an organism's genome. Achieving uniform coverage is essential in various genomic applications, including genome sequencing, assembly, and variant calling.

When doing a sequencing operation, between the two strands: A and T pair up, and G and C pair up.

Polymerase: you can complete the reverse strand using the forward strand and vice versa

You have a flow cell, where mini holes are etched into a semiconductor surface. Strands of DNA flow through these column, and randomly just click into some of the wells. These billions of microwells which contain one sequence.

Once you get a lot of these strands to get stuck in these wells, every round you just add a complement to the next base pair, repeat this for different cycles. You take a camera that takes pictures of these fluorescent signals as you go up and add more nucleotides on the base complement pair, and then based on these cycles you construct the complement of the strands, which allows you to read it. This is how you synthesize the reads. The base of this is known as the terminator of the strand, this is where you start the sequencing. This process is automated.